Algebra 2
Unit 8

Name_____

Oral Exercises

Express in exponential form.

1. $\log_2 32 = 5$
2. $\log_3 9 = 2$
3. $\log_7 \sqrt{7} = \frac{1}{2}$
4. $\log_3 \frac{1}{81} = -4$

Express in logarithmic form.

5. $4^3 = 64$
6. $9^{3/2} = 27$
7. $10^{-2} = 0.01$
8. $16^{-3/4} = \frac{1}{8}$

Simplify.

9. $\log_6 36$
10. $\log_2 16$
11. $\log_{10} 100$
12. $\log_3 \frac{1}{9}$
13. $\log_2 2\sqrt{2}$
14. $\log_7 1$
15. $4^{\log_4 16}$
16. $\log_6 (6^5)$

Written Exercises

Simplify each logarithm.

A

1. $\log_5 125$
2. $\log_4 16$
3. $\log_3 81$
4. $\log_6 6$
5. $\log_3 1$
6. $\log_8 4$
7. $\log_5 \frac{1}{25}$
8. $\log_2 \frac{1}{8}$
9. $\log_6 6\sqrt{6}$
10. $\log_5 25\sqrt{5}$
11. $\log_4 \sqrt{2}$
12. $\log_{27} \sqrt{3}$
13. $\log_7 \sqrt[3]{49}$
14. $\log_3 \sqrt[5]{9}$
15. $\log_{1/2} 8$
16. $\log_{1/3} 27$
17. $\log_2 \sqrt[3]{\frac{1}{4}}$
18. $\log_{10} \frac{1}{\sqrt{1000}}$

Solve for x.

19. $\log_7 x = 2$
20. $\log_6 x = 3$
21. $\log_9 x = -\frac{1}{2}$
22. $\log_6 x = 2.5$
23. $\log_4 x = -\frac{3}{2}$
24. $\log_{1/9} x = -\frac{1}{2}$

B

25. $\log_x 27 = \frac{3}{2}$
26. $\log_x 64 = 6$
27. $\log_x 7 = -\frac{1}{2}$
28. $\log_x 7 = 1$
29. $\log_x 1 = 0$
30. $\log_x 2 = 0$